TY  - JOUR

AU  - Canova, Fabio
TI  - An Alternative Approach to Modeling and Forecasting Seasonal Time Series
JO  - Journal of Business & Economic Statistics
PY  - Jan 1992
SN  - 07350015
VL  - 10
IS  - 1
SP  - 97
UR  -
http://proquest.umi.com/pqdweb?did=1154030&Fmt=7&clientId=19649&RQT=309&VName=PQD

AB  -  An alternative methodology is proposed for modeling and forecasting seasonal series. The approach is in the Bayesian autoregression tradition pioneered by Doan, Litterman, and Sims, and it builds seasonality directly into the prior of the coefficients of the model by means of a set of uncertain linear restrictions. As an illustration, the method is applied to 10 US quarterly macroeconomic series. For each series, the forecasting performance of a univariate time-varying autoregressive model with seasonality built in the prior of the coefficients is compared with 5 other widely used models. The model does not impose orthogonality restrictions among components of the series, nor does it restrict the frequency-domain representation of the estimated seasonal pattern to show peaks at all seasonal frequencies.

KW  - Time series
KW  - Statistical analysis
KW  - Seasonal
KW  - Forecasting techniques
KW  - Economic theory
KW  - Economic models
KW  - Economic forecasting
KW  - Comparative studies
KW  - Bayesian analysis
ER  -

TY  - JOUR

AU  - Osborn, Denise R.

TI  - The Implications of Periodically Varying Coefficients for Seasonal Time-Series Processes
JO  - Journal of Econometrics
PY  - Jun 1991
SN  - 03044076
VL  - 48
IS  - 3
SP  - 373
UR  - http://proquest.umi.com/pqdweb?did=1184192&Fmt=7&clientId=19649&RQT=309&VName=PQD

AB  -  Periodic autoregressive moving average (ARMA) processes have seasonally varying parameters superimposed on a conventional ARMA structure. These varying parameters can arise when seasonality is incorporated into the theory of economic decision making. Analogously to the aggregate of component ARMA processes having a univariate representation, the periodic process has a corresponding ARMA representation. This univariate representation may, however, imply high orders and substantial dynamic misspecification. In terms of forecast efficiency, the true periodic dynamic process dominates its univariate counterpart.

KW  - Time series
KW  - Studies
KW  - Seasonal
KW  - Processes
KW  - Multivariate analysis
KW  - Forecasting techniques
KW  - Errors
KW  - Economic theory
KW  - Economic models
KW  - Econometrics
KW  - Seasons
KW  - Economics
ER  -

TY  - JOUR

AU  - Withycombe, Richard
TI  - Forecasting with Combined Seasonal Indices
JO  - International Journal of Forecasting
PY  - 1989
SN  - 01692070
VL  - 5
IS  - 4
SP  - 547
UR  - http://proquest.umi.com/pqdweb?did=1121482&Fmt=7&clientId=19649&RQT=309&VName=PQD

AB  -  The traditional methods of forecasting the demand for products that exhibit a seasonal pattern call for estimation of the seasonal component based on the history of demand for that particular product. It is suggested that the seasonal estimation would be more accurate if the demands for similar products

were first combined into a product line. Seasonal indexes calculated for the product would then be used as the estimate of the seasonal component for each of the products. In a study involving 6 product lines from 3 different companies, 5 years of monthly data were used, covering the period November 1976-October 1981. The results indicated that combined indexes reduce average forecast errors. Reductions of 2%-20% were shown for the total mean squared errors for the product lines examined. The combined seasonal index technique has 2 advantages other than increased accuracy: 1. reduced cost and effort, and 2. the capability to seasonally adjust new products.

KW - Studies
KW - Statistical analysis
KW - Seasonal
KW - Sales forecasting
KW - Product lines
KW - Forecasting techniques
KW - Demand
KW - Business indicators
ER -

TY - JOUR

AU - Sastri, Tep
TI - Multipass Seasonal Adjustment Filter
JO - Management Science
PY - Jan 1989
SN - 00251909
VL - 35
IS - 1
SP - 100
UR -
http://proquest.umi.com/pqdweb?did=106132&Fmt=7&clientId=19649&RQT=309&VName=PQD

AB - A state-space seasonal time series model and a new seasonal decomposition algorithm, based on the Kalman (1960) filter, are presented. The model is statistically equal to the multiplicative seasonal model of Box and Jenkins (1976). The steady-state filter's forecasts of this model are shown to be identical to the Box and Jenkins' values. The seasonal adjustment and decomposition algorithm is based on a multipass filtering procedure for back forecasting and smoothing. Using 9 real time series, an empirical demonstration of in-sample one-step forecasting performances of the filter is conducted. With an additional set of 20 time series from the Makridakis-Hibon (1979) collection, out-of-sample forecasting evaluation of the method is also given. Comparisons are made with the Census X-11 procedure for insample performances, and to the Winters (1960) and simple ratio-to-moving-average methods for the ex-post forecasting. It is observed that the multipass seasonal adjustment filter forecasts are better than competitors in most instances, particularly when leadtimes are at least one season in length.

KW - Time series
KW - Studies
KW - Statistical analysis
KW - Seasonal
KW - Measures

KW  - Mathematical models
KW  - Management science
KW  - Forecasting techniques
KW  - Evaluation
KW  - Adjustments
ER  -

TY  - JOUR

AU  - Friedman, Susan Krug
TI  - Forecasting A Seasonal Population
JO  - Business Economics
PY  - Jul 1988
SN  - 0007666X
VL  - 23
IS  - 3
SP  - 48
UR  -
http://proquest.umi.com/pqdweb?did=193189&Fmt=7&clientId=19649&RQT=309&VName=PQD

AB  -  While data support the importance of winter visitors to Phoenix, Arizona, there is little historical information available on seasonal residents. Research on other US communities is similarly lacking since, until 1980, only data regarding population by place of "usual residence" were gathered by the US Census Bureau. In order to estimate trends in seasonal population over time, a study was conducted of the number of residential electricity customers of Salt River Project, a water and power utility. The seasonal pattern of electric customers was used as a proxy for the seasonal variation of residents. Senior citizens represent a significant proportion of seasonal residents in Arizona, and as population trends are stable in the near term, other factors account for yearly fluctuations in the number of winter residents. These include: 1. weather, 2. economics, and 3. the exchange value of the Canadian dollar, since Canadians comprise one out of 8 winter residents. For communities that experience such seasonal population flows, analysis may help in planning to meet peak needs for municipal, utility, and medical services.

KW  - Winter
KW  - Trends
KW  - Seasonal
KW  - Population
KW  - Mathematical models
KW  - Implications
KW  - Forecasting techniques
KW  - Demographics
KW  - Seasons
KW  - Population
KW  - Economic conditions
ER  -

TY  - JOUR

AU  - Schroeder, Roger G.
AU  - Larson, Paul D.
TI  - A Reformulation of the Aggregate Planning Problem
JO  - Journal of Operations Management
PY  - May/Aug 1986
SN  - 02726963
VL  - 6
IS  - 3,4
SP  - 245
UR  -
http://proquest.umi.com/pqdweb?did=1178968&Fmt=7&clientId=19649&RQT=309&VName=PQD

AB  -  A reformulation of the aggregate planning problem is proposed that more closely agrees with situations frequently encountered in practice. The proposed reformulation assumes that a firm's production planners want to determine the expected service and inventory levels for a particular production profile in the face of uncertain seasonal demand. It is possible to pick the profile that best meets the firm's inventory and service level preferences by using several different production profiles, each consistent with the firm's staffing, subcontracting, and overtime policies. The trade-offs between inventory and service levels are examined to enable an informed choice to be made by all concerned. One advantage of the proposed model is the ability to establish communications among production, marketing, and finance managers, who often have conflicting goals. An application of the model to Wagner Spray Tech Co., a producer of painting equipment, is presented to demonstrate potential uses of the model. Finally, reasons are given why this particular reformulation of the aggregate planning problem was useful in this case.

KW  - Uncertainty
KW  - Seasonal
KW  - Production planning
KW  - Operations research
KW  - Models
KW  - Mathematical analysis
KW  - Forecasting techniques
KW  - Demand
ER  -

TY  - JOUR

AU  - Chambers, M. L.
AU  - Eglese, R. W.
TI  - Forecasting Demand for Mail Order Catalogue Lines During the Season
JO  - European Journal of Operational Research
PY  - Mar 1988
SN  - 03772217
VL  - 34
IS  - 2
SP  - 131
UR  -
http://proquest.umi.com/pqdweb?did=1069604&Fmt=7&clientId=19649&RQT=309&VName=PQD

AB - Forecasting demand for mail order catalogs is not easy because most of them include a large number of new lines. Forecasts for all lines typically are updated every week during the season. The normal method of forecasting net demand is to estimate separately the gross demand for the line and the proportion of the demand for the line that will be returned. However, an analysis of data from a mail order company indicates that this trend-profile method of forecasting can be inaccurate because of random fluctuations in the observed demand and errors in estimating the trend proportion (the proportion of final demand expected by the week being forecast). Forecast errors can be reduced by grouping lines so that all the lines in the group have similar trend profiles. After lines are grouped satisfactorily, estimation errors may be reduced by trying to smooth year-to-year variations in the true group profiles by averaging the observed profiles over a number of years.

KW - Trends
KW - Seasonal
KW - Sales forecasting
KW - Product lines
KW - Operations research
KW - Mathematical models
KW - Mail order
KW - Inventory
KW - Forecasting techniques
KW - Errors
KW - Demand
ER -

TY - JOUR

AU - Muir, James W.
TI - Pragmatic Solutions to Most Common Forecasting Problems
JO - The Journal of Business Forecasting Methods & Systems
PY - Summer 1985
SN - 02786087
VL - 4
IS - 2
SP - 4
UR - http://proquest.umi.com/pqdweb?did=1156274&Fmt=7&clientId=19649&RQT=309&VName=PQD

AB - The accuracy of a company's forecast of what to make and stock separates marginal firms from superior performers. Companies today need simple, practical, straightforward solutions to ensure that the sales forecasting system is achieving the best results. Eleven of the most frequent problems faced by forecasters are reviewed that offer the greatest opportunity for pragmatic solutions to improve the forecast. Areas of particular importance include: 1. error criterion, 2. parameters, 3. time warranted to improve the forecast, 4. automatic model selection methods, 5. determining seasonality factors, 6. the role of management, 7. the effect of nonrecurring management decisions, and 8. the importance of management review, intervention, and participation. How to get marketing and manufacturing agreement on forecasts is probably the main problem facing businesses today, and the answer seems to lie in linking together all of the known information available. One way to do this involves the Pyramid

Principle: making forecasts at the level of detail needed, with item by location level, and then tying lower to higher level forecasts.

KW - Seasonal
KW - Sales
KW - Production
KW - Problems
KW - Planning
KW - Models
KW - Marketing
KW - Forecasting techniques
KW - Forecasting
ER -

TY - JOUR

AU - Sweet, Arnold L.
TI - Computing the Variance of the Forecast Error for the Holt-Winters Seasonal Models
JO - Journal of Forecasting
PY - Apr/Jun 1985
SN - 02776693
VL - 4
IS - 2
SP - 235
UR - http://proquest.umi.com/pqdweb?did=1177985&Fmt=7&clientId=19649&RQT=309&VName=PQD

AB - Expressions are presented for the variance of the forecast error for arbitrary lead times for both the additive and multiplicative Holt-Winters seasonal forecasting models. It is demonstrated that, even when the smoothing constants are chosen to have values between zero and one, when the period is greater than 4, the variance may not be finite for some values of the smoothing constants. Also, the regions in which the variance becomes infinite are almost the same for both models. These results are of importance for practitioners, who may select values for the smoothing constants arbitrarily or by searching on the unit cube for values that minimize the sum of the squared errors when fitting the model to a data set. It is also demonstrated that the variance of the forecast error for the multiplicative model is nonstationary and periodic.

KW - Seasonal
KW - Models
KW - Mathematical models
KW - Forecasting techniques
ER -

TY - JOUR

AU - Riggs, Walter E.
TI - A Short-Term Forecasting Model for Producers of Seasonal Style Goods
JO - Production and Inventory Management
PY - Fourth Quarter 1984

SN - 00329843
VL - 25
IS - 4
SP - 42
UR - http://proquest.umi.com/pqdweb?did=1269857&Fmt=7&clientId=19649&RQT=309&VName=PQD

AB - A forecasting model is presented that is designed specifically to operate in the seasonal style goods environment. A seasonal style good is subject to alteration such that each selling season may represent a separate venture. The basic concept underlying the model is that the systematic component of forecast error is composed of a change in total season sales and a shift of the allocation of those sales or bookings among periods. The model employed arbitrary parameter values. The first step in applying the model is to derive the fraction of the total season sales expected to be completed by the end of each period in the season. The forecasting process begins by developing initial forecasts of weekly order placements for each item in each product line by using an initial estimate of total season order placements developed by the manufacturer for each item. The model has been tested using data from a large apparel manufacturer. Simulated forecasts for 327 items were prepared for the 1979 fall/winter season. When forecasting total season bookings at midseason, the average percent error was .5%, and the average absolute percent error was 29.6%.

KW - Short term
KW - Seasonal
KW - Sales forecasting
KW - Production planning
KW - Forecasting techniques
ER -

TY - JOUR

AU - Austin, John S.
TI - How to Use and Interpret Seasonal Factors
JO - Business Economics
PY - Sep 1981
SN - 0007666X
VL - 16
IS - 4
SP - 40
UR - http://proquest.umi.com/pqdweb?did=963162&Fmt=7&clientId=19649&RQT=309&VName=PQD

AB - Seasonal factors are a way of analyzing data to show regular recurring changes associated with the season. A seasonal factor measures the percentage amount that a month deviates from normal. A seasonally adjusted series shows changes brought about by irregular (short-run) and trend-cycle (long-run) disturbances apart from regular recurring seasonal changes. The Seasonally Adjusted Annual Rate (SAAR) is a way to annualize a monthly figure. SAAR rates can be averaged to indicate annual equivalent standing and can be used to calculate targets necessary to meet a forecast. Seasonal adjustment factors, if

used intelligently and with some caution, can be useful in determining present states and future goals.

KW - Wheat
KW - Seasonal
KW - Forecasting techniques
KW - Factors
ER -